TUGAS MINGGU KEDUA

STATISTIKA DESKRIPTIF

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S1 SISTEM INFORMASI

FAKULTAS SAINS DAN TEKNOLOGI

UNIVERSITAS AIRLANGGA

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A. Cari data riil dari buku atau sumber yang lain minimal 100 data

Kabupaten/Kota	2015	2016	2017	2018	2019
1. Cilacap	1 694 726	1 703 390	1 711 627	1 719 504	1 727 098
2. Banyumas	1 635 909	1 650 625	1 665 025	1 679 124	1 693 006
3. Purbalingga	898 376	907 507	916 427	925 193	933 989
4. Banjarnegara	901 826	907 410	912 917	918 219	923 192
5. Kebumen	1 184 882	1 188 603	1 192 007	1 195 092	1 197 982
6. Purworejo	710 386	712 686	714 574	716 477	718 316
7. Wonosobo	777 122	780 793	784 207	787 384	790 504
8. Magelang	1 245 496	1 257 123	1 268 396	1 279 625	1 290 591
9. Boyolali	963 690	969 325	974 579	979 799	984 807
10. Klaten	1 158 795	1 163 218	1 167 401	1 171 411	1 174 986
11. Sukoharjo	864 207	871 397	878 374	885 205	891 912
12. Wonogiri	949 017	951 975	954 706	957 106	959 492
13. Karanganyar	856 198	864 021	871 596	879 078	886 519
14. Sragen	879 027	882 090	885 122	887 889	890 518
15. Grobogan	1 351 429	1 358 404	1 365 207	1 371 610	1 377 788
16. Blora	852 108	855 573	858 865	862 110	865 013
17. Rembang	619 173	624 096	628 922	633 584	638 188
18. Pati	1 232 889	1 239 989	1 246 691	1 253 299	1 259 590
19. Kudus	831 303	841 499	851 478	861 430	871 311
20. Jepara	1 188 289	1 205 800	1 223 198	1 240 600	1 257 912
21. Demak	1 117 905	1 129 298	1 140 675	1 151 796	1 162 805
22. Semarang	1 000 887	1 014 198	1 027 489	1 040 629	1 053 786
23. Temanggung	745 825	752 486	759 128	765 594	772 018
24. Kendal	942 283	949 682	957 024	964 106	971 086
25. Batang	743 090	749 720	756 079	762 377	768 583
26. Pekalongan	873 986	880 092	886 197	891 892	897 711
27. Pemalang	1 288 577	1 292 609	1 296 281	1 299 724	1 302 813
28. Tegal	1 424 891	1 429 386	1 433 515	1 437 225	1 440 698
29. Brebes	1 781 379	1 788 880	1 796 004	1 802 829	1 809 096
30. Kota Magelang	120 792	121 112	121 474	121 872	122 111
31. Kota Surakarta	512 226	514 171	516 102	517 887	519 587
32. Kota Salatiga	183 815	186 420	188 928	191 571	194 084
33. Kota Semarang	1 701 114	1 729 083	1 757 686	1 786 114	1 814 110
34. KotaPekalongan	296 404	299 222	301 870	304 477	307 097
35. Kota Tegal	246 119	247 212	248 094	249 003	249 905

No	Ukuran	Dengan rumus	Dengan syntax R
| 1 | Mean | ```
> jumlah = sum(Jateng_$`2015`)
> banyak = length(Jateng_$`2015`)
> mean = jumlah/banyak
> mean
[1] 964975.5
```<br><br>```
jumlah = sum(nama_data$`kolom`)
banyak = length(nama_data$`kolom`)
mean = jumlah/banyak
mean
``` | ```
> mean(Jateng_$`2015`)
[1] 964975.5
> mean(Jateng_$`2016`)
[1] 971974.1
> mean(Jateng_$`2017`)
[1] 978796.1
> mean(Jateng_$`2018`)
[1] 985452.4
> mean(Jateng_$`2019`)
[1] 991948.7
```<br><br>```
mean(nama_data$`kolom`)
``` |
| 2 | Median | ```
> ManMedian <- function(b){
+   b <- sort(b)
+   if(length(b) %% 2 == 0){
+     index <- length(b)/2
+     (b[index]+b[index+1])/2
+   }
+   else{
+   b[(length(b)+1)/2]
+   }
+ }
> ManMedian(Jateng_$'2015')
[1] 901826
```<br><br>```
ManMedian <- function(b){
  b <- sort(b)
  if(length(b) %% 2 == 0){
    index <- length(b)/2
    (b[index]+b[index+1])/2
  }
  else{
  b[(length(b)+1)/2]
  }
}
ManMedian(nama_data$`kolom`)
``` | ```
> median(Jateng_$`2015`)
[1] 901826
```<br><br>```
median(nama_data$`kolom`)
``` |
| 3 | Modus | ```
> modus_man <- function(b) {
+     new <- unique(b)
+     new[which.max(tabulate(match(b, new)))]
+ }
> modus_man(Jateng_$`2015`)
[1] 1694726
```<br><br>```
modus_man <- function(b) {
  new <- unique(b)
  new[which.max(tabulate(match(b, new)))]
}
modus_man(nama_data$`kolom`)
``` | ```
> modus_man <- function(b) {
+     new <- unique(b)
+     new[which.max(tabulate(match(b, new)))]
+ }
> modus_man(Jateng_$`2015`)
[1] 1694726
```<br><br>```
modus_man <- function(b) {
  new <- unique(b)
  new[which.max(tabulate(match(b, new)))]
}
modus_man(nama_data$`kolom`)
``` |

4	Varians	`> mean <- mean(Jateng_$`2015`)`
		`> VarianMan <- sum((Jateng_$`2015`-mean)^2/`
		`((length(Jateng_$`2015`))-1))`
		`> VarianMan`
		`[1] 1.72165e+11`
		
		```mean <- mean(nama_data$`kolom`)```
		```VarianMan <- sum((nama_data$`kolom` -```
		```mean)^2/((length(nama_data$`kolom`))-```
		```1))```
		```VarianMan```
			`> var(Jateng_$`2015`)`
			`[1] 1.72165e+11`
			
			```var(nama_data$`kolom`)```

5	Standar deviasi	`> mean <- mean(Jateng_$`2015`)`
		`> VarianMan <- sum((Jateng_$`2015`-mean)^2/`
		`((length(Jateng_$`2015`))-1))`
		`> sqrt(VarianMan)`
		`[1] 414927.7`
		
		```mean <- mean(nama_data$`kolom`)```
		```VarianMan <- sum((nama_data$`kolom`-```
		```mean)^2/((length(nama_data$`kolom`))-1))```
		```sqrt(VarianMan)```
			`> sd(Jateng_$`2015`)`
			`[1] 414927.7`
			
			```sd(nama_data$`kolom`)```

B. Generate data sebanyak 100.000 data

dataB <- sample(1:100,100000, replace = TRUE)

```
> dataB <- sample(1:100,100000, replace = TRUE)
> dataB
   [1]   4  51  32  52  40   2  43  73  93  72  19 100  57  33  72  53  83  29
```

No	Ukuran	Dengan rumus	Dengan syntax R
1	Mean	```> #mean_man > Jumlah_B <- sum(dataB) > Banyak_B <- length(dataB) > Mean_B <- Jumlah_B/Banyak_B > Mean_B [1] 50.59818``` `Jumlah_B <- sum(dataB)` `Banyak_B <- length(dataB)` `Mean_B <- Jumlah_B/ Banyak_B`	```> mean(dataB) [1] 50.59818``` `mean(dataB)`
2	Median	```> ManMedian <- function(b){ + b <- sort(b) + if(length(b) %% 2 == 0){ + index <- length(b)/2 + (b[index]+b[index+1])/2 + } + else{ + b[(length(b)+1)/2] + } + } > ManMedian(dataB) [1] 51``` ```ManMedian <- function(b){ b <- sort(b) if(length(b) %% 2 == 0){ index <- length(b)/2 (b[index]+b[index+1])/2 } else{ b[(length(b)+1)/2] } } ManMedian(dataB)```	```> median(dataB) [1] 51``` `median(dataB)`

| 3 | Modus | ```
> #modus V2
> modus_man <- function(b) {
+    new <- unique(b)
+    new[which.max(tabulate(match(b, new)))]
+ }
> modus_man(dataB)
 [1] 57
```<br><br>```
modus_man <- function(b) {
  new <- unique(b)
  new[which.max(tabulate(match(b, new)))]
}
modus_man(dataB)
``` | ```
> #modus V2
> modus_man <- function(b) {
+    new <- unique(b)
+    new[which.max(tabulate(match(b, new)))]
+ }
> modus_man(dataB)
 [1] 57
```<br><br>```
modus_man <- function(b) {
  new <- unique(b)
  new[which.max(tabulate(match(b, new)))]
}
modus_man(dataB)
``` |
|---|---|---|---|
| 4 | Varians | ```
> #varian_man
> mean <- mean(dataB)
> VarianMan <- sum((dataB-mean)^2/((length(dataB))-1))
> VarianMan
 [1] 834.07
```<br><br>```
mean <- mean(dataB)
VarianMan <- sum((dataB-
mean)^2/((length(dataB))-1))
VarianMan
``` | ```
> var(dataB)
 [1] 834.07
```<br><br>```
var(dataB)
``` |
| 5 | Standar deviasi | ```
> #Stand_Deviasi
> mean <- mean(dataB)
> VarianMan <- sum((dataB-mean)^2/((length(dataB))-1))
> sqrt(VarianMan)
 [1] 28.88027
```<br><br>```
mean <- mean(dataB)
VarianMan <- sum((dataB-
mean)^2/((length(dataB))-1))
sqrt(VarianMan)
``` | ```
> sd(dataB)
 [1] 28.88027
```<br><br>```
sd(dataB)
``` |